

## NUTRITION

## High animal protein intake linked to long-term weight gain

A high dietary intake of protein has been considered to exert beneficial effects on weight control; however, evidence has been inconsistent. A European group now believe this theory to be a misconception, instead reporting that a high intake of animal protein, particularly that from red meat, poultry and processed meat, is linked to long-term weight gain.

The considered beneficial effects of a high dietary intake of protein on

weight gain and maintenance stem from the theory that protein increases thermogenesis and satiety more than other macronutrients. Many diets advocate a high protein intake but there are limited data regarding the effects of protein and different sources of protein on weight.

Halkjaer and colleagues from a number of institutions across Europe conducted an observational study of 89,432 men and women who were participants in the diet, genes and obesity project (Diogenes) of the European Prospective Investigation into Cancer and Nutrition. Individuals were followed up for 6.5 years and researchers examined associations between the intake of protein or subgroups of protein and changes in weight and waist circumference. A variety of methods were used to obtain detailed dietary information from participants, including country-specific food frequency questionnaires. Study outcomes were annual changes in weight (g) and waist circumference (cm).

A high dietary intake of total protein and protein from animal sources was associated with weight gain. This finding was true for both men and women although the association was strongest for women. Protein from red meat and processed meat and poultry rather than from fish and dairy products was found to be mainly responsible for the association. No link between plant protein intake and weight gain was found. Protein intake was not found to influence waist circumference.

The group believe their work adds valuable information to the limited body of evidence on this topic. They cite the need for more studies investigating the effects of different subtypes of protein and the complex nutrients found in protein-rich food.

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**Original article** Halkjaer, J. *et al.* Intake of total, animal and plant protein and subsequent changes in weight or waist circumference in European men and women: the Diogenes project. *Int. J. Obes.* doi:10.1038/ijo.2010.254



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